APRIL/MAY 2024

CAEL34/FAEL32 — BASIC PHYSICS – I

Time : Three hours Maximum : 75 marks

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SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Define radius of gyration.
2. What is weightlessness?
3. Define Poisson's ratio.
4. Mention the relation between the three elastic constants.
5. Define turbulent flow.
6. State Stoke's law.
7. State the statement of second law of thermodynamics.
8. What is an irreversible process?
9. Define reverberation.
10. What is absorption co-efficient?

SECTION B — (5 × 5 = 25 marks)

Answer ALL the questions.

11. (a) Derive an expression for moment of inertia of a solid sphere.

Or

(b) Discuss the variation of G with altitude.

12. (a) Derive an expression for torsion in a wire.

Or

(b) Explain the measurement of Young's modulus by uniform bending.

13. (a) Discuss the excess of pressure inside a soap bubble.

Or

(b) Describe the variation of surface tension with temperature.

14. (a) Describe the thermal conductivity of a bad conductor by Lee' disc.

Or

(b) Explain the irreversible process.

15. (a) Explain the measurement of AC frequency by Melde's string.

Or

(b) Explain the uses of ultrasonic waves.

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SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the determination of G by Boy's method.

17. Explain the determination of rigidity modulus by static torsion.

18. Explain the surface tension of liquid by Jaegar's method.

19. Describe the thermal conductivity of a good conductor.

20. Derive Sabine's formula.

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